

**WHAT IS CLAIMED IS:**

- 1        1. A gas fitting interlock apparatus comprising:  
2              a pedestal portion;  
3              a fitting support portion disposed on the pedestal portion;  
4              an interlock nut clamp configured to be fastened to the fitting support portion;  
5              and  
6              a fastener for fastening the interlock nut clamp to the fitting support portion,  
7              the fastener being capable of being tightened to a tightness equal to or  
8              greater than a predetermined tightness sufficient to clamp a gas line  
9              disposed between the interlock nut clamp and the pedestal portion.
- 1        2. The apparatus of claim 1, further comprising:  
2              a momentary switch disposed within the pedestal portion, wherein the  
3              momentary switch is  
4              closed when the fastener is tightened to a tightness equal to or greater  
5              than the predetermined tightness sufficient to clamp the gas line  
6              disposed between the interlock nut clamp and the pedestal  
7              portion and  
8              open when the fastener is not tightened to a tightness equal to or  
9              greater than the predetermined tightness sufficient to clamp the  
10             gas line disposed between the fitting support portion and the  
11             pedestal portion.

1       3. The apparatus of claim 2 further comprising:  
2       a first circuit including  
3            a first power source and  
4            at least one indicator, wherein the at least one indicator is operably  
5            coupled to the momentary switch and the first power source  
6            such that the at least one indicator  
7            presents an indication when the momentary switch is closed  
8            and  
9            does not present an indication when the momentary switch is  
10          not closed; and  
11        a second circuit including a second power source, wherein  
12            the second circuit is operably coupled to the momentary switch and the  
13            second power source such that the second circuit is  
14            closed when the momentary switch is closed and  
15            open when the second circuit is open and  
16            the second circuit is capable of being operably coupled to circuitry of  
17            equipment to which the gas fitting interlock apparatus is  
18            capable of being operably coupled, such that when the  
19            apparatus is operably coupled to the equipment and the second  
20            circuit is operably coupled to the equipment circuitry, the  
21            equipment is prevented from operating when the momentary  
22            switch is open.

1       4. The apparatus of claim 3, wherein the at least one indicator is an at  
2       least one light-emitting diode.

1       5. The apparatus of claim 3, wherein the momentary switch includes  
2       a first contact by which the momentary switch is operably coupled to the at  
3       least one indicator;  
4       a second contact by which the momentary switch is operably coupled to the  
5       first circuit voltage source;  
6       a third contact by which the momentary switch is operably coupled to the  
7       pedestal portion and the fitting support portion; and  
8       a fourth contact by which the momentary switch is operably coupled to an  
9       input/output interlock return, wherein the input/output interlock return  
10      is operably coupled to the second circuit power source.

1       6. An apparatus for atmosphere chemical vapor deposition, the apparatus  
2       comprising:  
3            a gas fitting interlock apparatus including  
4              a pedestal portion;  
5              a fitting support portion disposed on the pedestal portion;  
6              an interlock nut clamp configured to be fastened to the fitting support  
7              portion; and  
8            a fastener for fastening the interlock nut clamp to the fitting support  
9              portion, the fastener being capable of being tightened to a  
10          tightness equal to or greater than a predetermined tightness  
11          sufficient to clamp a gas line disposed between the interlock  
12          nut clamp and the pedestal portion.

1       7. The apparatus of claim 6, wherein the gas fitting interlock apparatus  
2 further includes

3           a momentary switch disposed within the pedestal portion, wherein the  
4           momentary switch is  
5           closed when the fastener is tightened to a tightness equal to or greater  
6           than the predetermined tightness sufficient to clamp the gas line  
7           disposed between the interlock nut clamp and the pedestal  
8           portion and  
9           open when the fastener is not tightened to a tightness equal to or  
10           greater than the predetermined tightness sufficient to clamp the  
11           gas line disposed between the fitting support portion and the  
12           pedestal portion.

1       8. The apparatus of claim 7, further comprising:

2           a first circuit including

3           a first power source and  
4           at least one indicator, wherein the at least one indicator is operably  
5           coupled to the momentary switch and the first power source  
6           such that the at least one indicator  
7           presents an indication when the momentary switch is closed  
8           and  
9           does not present an indication when the momentary switch is  
10           not closed; and

11           a second circuit including a second power source, wherein

12           the second circuit is operably coupled to the momentary switch and the  
13           second power source such that the second circuit is  
14           closed when the momentary switch is closed and  
15           open when the second circuit is open and  
16           the second circuit is capable of being operably coupled to circuitry of  
17           equipment to which the gas fitting interlock apparatus is  
18           capable of being operably coupled, such that when the  
19           apparatus is operably coupled to the equipment and the second

20                   circuit is operably coupled to the equipment circuitry, the  
21                   equipment is not capable of operating when the momentary  
22                   switch is open.

1                 9.       The apparatus of claim 8, wherein the at least one indicator is an at  
2                 least one light-emitting diode.

1                 10.      The apparatus of claim 8, wherein the momentary switch includes  
2                 a first contact by which the momentary switch is operably coupled to the at  
3                 least one indicator;  
4                 a second contact by which the momentary switch is operably coupled to the  
5                 first circuit voltage source;  
6                 a third contact by which the momentary switch is operably coupled to the  
7                 pedestal portion and the fitting support portion; and  
8                 a fourth contact by which the momentary switch is operably coupled to an  
9                 input/output interlock return, wherein the input/output interlock return  
10                is operably coupled to the second circuit power source.

1                 11.      A method for using a gas fitting connection, the method comprising:  
2                 inserting a gas line into an interlock component for receiving the gas line, the  
3                 interlock component including a momentary switch;  
4                 tightening the interlock component to a tightness equal to or greater than a  
5                 predetermined tightness sufficient to clamp the gas line, the tightness  
6                 to which the interlock component is tightened enabling the momentary  
7                 switch to close;  
8                 presenting an indication when the momentary switch is closed; and  
9                 preventing gas from flowing through the gas line when the momentary switch  
10                is open.

1                 12.      The method of claim 11, wherein the interlock component further  
2                 includes  
3                 a pedestal portion;  
4                 a fitting support disposed on the pedestal portion;

5           an interlock nut clamp configured to be fastened to the fitting support portion;  
6           and  
7           a fastener for fastening the interlock nut clamp to the fitting support portion.

1           13.     The method of claim 12, wherein the interlock component further  
2     includes  
3           a momentary switch disposed within the pedestal portion, wherein the  
4           momentary switch is  
5           closed when the fastener is tightened to a tightness equal to or greater  
6           than the predetermined tightness sufficient to clamp the gas line  
7           disposed between the interlock nut clamp and the pedestal  
8           portion and  
9           open when the fastener is not tightened to a tightness equal to or  
10           greater than the predetermined tightness sufficient to clamp the  
11           gas line disposed between the fitting support portion and the  
12           pedestal portion.

1           14.     The method of claim 13, wherein  
2     the presenting an indication is performed by a first circuit including  
3           a first power source and  
4           at least one indicator, wherein the at least one indicator is operably  
5           coupled to the momentary switch and the first power source  
6           such that the at least one indicator  
7           presents an indication when the momentary switch is closed  
8           and  
9           does not present an indication when the momentary switch is  
10           not closed; and  
11     the preventing is performed by a second circuit including a second power  
12           source, wherein  
13           the second circuit is operably coupled to the momentary switch and the  
14           second power source such that the second circuit is  
15           closed when the momentary switch is closed and  
16           open when the second circuit is open and

17           the second circuit is capable of being operably coupled to circuitry of  
18           equipment to which the gas fitting interlock apparatus is  
19           capable of being operably coupled, such that when the  
20           apparatus is operably coupled to the equipment and the second  
21           circuit is operably coupled to the equipment circuitry, the  
22           equipment is not capable of operating when the momentary  
23           switch is open.

1           15. The method of claim 14, wherein the at least one indicator is an at least  
2           one light-emitting diode.

1           16. The method of claim 14, wherein the momentary switch includes  
2           a first contact by which the momentary switch is operably coupled to the at  
3           least one indicator;  
4           a second contact by which the momentary switch is operably coupled to the  
5           first circuit voltage source;  
6           a third contact by which the momentary switch is operably coupled to the  
7           pedestal portion and the fitting support portion; and  
8           a fourth contact by which the momentary switch is operably coupled to an  
9           input/output interlock return, wherein the input/output interlock return  
10          is operably coupled to the second circuit power source.

1           17. An apparatus comprising:  
2           means for receiving a gas line into an interlock component, the interlock  
3           component including a momentary switch;  
4           means for tightening the interlock component to a tightness equal to or greater  
5           than a predetermined tightness sufficient to clamp the gas line, the  
6           tightness to which the interlock component is tightened enabling the  
7           momentary switch to close;  
8           means for presenting an indication when the momentary switch is closed; and  
9           means for preventing gas from flowing through the gas line when the  
10          momentary switch is open.